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The present invention refers < RTI ID=1.1> < /RTI> an exchanger of heat, such as radiator of motor vehicle, comprising at least a collecting room, with which a plurality of conduits communicates provided with wings, the aforementioned collecting room being defined at least partly by matter envelope a moulded, the aforementioned envelope presenting of the means of assembly for the solidarisation of the exchanger with at least an element external such as the frame of the vehicle for the fixing of the exchanger on this frame and/or an accessory, for example a ventilator, for the fixing of this accessory on the exchanger.

There is < RTI ID=1.2> déjà< /RTI> proposed to carry out these means of assembly in the form of legs come from moulding with the envelope of the collecting room. But these legs are fragile. If they suitably support the efforts to which they are subjected in assembled position where the exchanger is fixed at the frame of the vehicle and supports < RTI ID=1.3> him-mÈme< /RTI> accessories such as the ventilator, they are on the other hand badly adapted to support the manual efforts to which they are exposed at the time of the assembly itself or demounting.

This is why it is preferable to envisage the means of assembly in the form of with less the one part which is distinct from the envelope and which is fixed at this envelope while the external element itself is fixed at this part of assembly.

However the fittings of this type suggested until now are not satisfactory because of the complexity of construction and also because they oblige to modify the geometrical characteristics of the interior volume of the collecting room. Moreover, they are applicable only to one well defined assembly, which involves for each one of them a mass production relatively small.

The present invention has as an aim an exchanger of heat such as radiator of motor vehicle comprising at least a collecting room, with which a plurality of conduits communicates provided with wings, the aforementioned collecting room being defined at least partly by a moulded envelope in matitre, the aforementioned envelope presenting of the means of assembly for the solidarisation of the exchanger with at least an external element such as the < RTI ID=2.1> châssis< /RTI> vehicle for the fixing of the exchanger on this frame and/or an accessory for the fixing of this accessory on the exchanger, the aforementioned means of assembly comprising at least a part which is distinct from the envelope and which is fixed at this one while the aforementioned external element is intended to be fixed at the aforementioned < RTI ID=2.2> piece< /RTI> of assembly, this exchanger being free of the various disadvantages referred to above, and having a simple and robust construction, having a character of universality of applications, allowing a manufacture in very great series.

According to the invention, this exchanger is characterized in that the envelope, out of moulded matter, of the water chamber comprises external embossings on which the part of assembly is adapted to being subjugated for its fixing with the aforementioned envelope.

Thanks to this provision, construction is simple since the part of assembly can be fixed directly on external embossings, for example by simple screws, it està-statement with a very reduced component count. Moreover as embossings are external with the envelope, they do not modify of anything the geometry the interior space of the collecting room and this one profits fully from the hydraulic characteristics of its interior volume. External embossings in addition cause to stiffen the envelope, which makes this one more robust. External embossings also have an additional function: that to improve the conditions of assembly of the collecting room, by in particular allowing an effective support of this one during such an assembly, with the press for example.

According to another characteristic, external embossings are distributed on all the surface of the envelope by ensuring a total stiffening of this one and are used for a part only of them, at will chosen, for the work-holding of assembly.

This fitting allows thus not only one total stiffening of the envelope thus better than a stiffening located, but, moreover, a standardization of the manufacture of the envelopes as well as the universality of their applications to various types of assemblies and vehicles. Indeed, with the same envelope provided with a great number of embossings, this number being surplus for the only needs for the work-holding for assembly, it is possible for certain types of assemblies, to fix the part of assembly at certain embossings and for other types of assembly to fix this part of assembly on other embossings and this according to the conditions of establishment, needs as regards equipment < RTI ID=3.1> etc. < /RTI> This universality of applications can be considered besides on two levels, initially by a manufacture of very great series of the envelopes without the parts of assembly, which allows the use of the exchanger in a very great number of applications, and then, by the choice not only of 1 ' site of the part of assembly, free choice thus left taking into account the great number of embossings, but also of the shape even of this part of assembly which can vary freely according to the destination of the exchanger.

According to another characteristic, external embossings, at least to some extent of them, are adapted to rece < RTI ID=3.2> c/ci< /RTI> the < RTI ID=3.3> part of assemblage< /RTI> subjugated by means of bodies such as screw, bolts, rivets, which cross holes of the part of assembly and which penetrate in embossings. Preferably, these embossings

define coplanar beaches of support for the part of assembly.

One obtains a very simple, but particularly effective construction thus not only since the parts of assembly are allowed to take support by a large basis of support on embossings at which they are precisely fixed.

According to another characteristic, external embossings, at least to some extent of them, are adapted to receive the part of assembly positioned by effect of fitment and each one of these embossings advantageously forms a projecting pawn on which a hole of the part of assembly is adapted to engage. Such embossings positioners advantageously supplement the assembly of the part of assembly since they take part in a load-carrying capacity of shearing, while relieving of as much the bodies of fixing themselves such as screws.

According to another characteristic, merry embossings exté, at least to some extent of them, are connected by veils of stiffening and these embossings and veils define, as a whole, of the coplanar beaches of support for the part of assembly. Thus the envelope of the collecting room profits from an excellent stiffening and moreover the part of assembly is allowed < RTI ID=4.1> à < /RTI> to take support on embossings and the veils by a great surface which supports these conditions of assembly.

Forms of execution are hereafter described as example, in reference to the annexed drawings in which figure 1 is a sight of rise, with wrenchings partial of an exchanger of heat such as a radiator of vehicle autanobile according to the invention; figure 2 is a corresponding sight, crosses from there according to line II-II of figure 1; figure 3 is a sight in prospect, of three quarters above, envelope of a collecting room of the exchanger of figure 1 and shows the part of assembly lends < RTI ID=4.2> a < /RTI> to be fixed on this envelope; figure 4 is a sight similar on figure 3 but relates to an alternative; figure 5 relates to another alternative.

One will refer initially on the figures 1 to 3 which concern, as nonrestrictive example, an application of the invention to an exchanger of heat such as a radiator 10 of motor vehicle.

Radiator 10 (figures 1 and 2) comprises a plurality of conduits of fluid L consisted a beam of parallel tubes. These tubes L are provided with a stacking of wings 12 spaced in tight formation.

At each end of the beam of tubes 11, these tubes L communicate into 14 with a collecting room C. This room C is defined at least partly by a moulded matter envelope 13.

In the example represented on figures 1 to 3, the room C is defined, < RTI ID=4.3> of une < /RTI> leaves, by a bottom rigid F which is covered with an elastic membrane M and to which the tubes L are fixed and, in addition, by one limps B, known as club-footed with water which caps the bottom F and which consti kills the moulded matter envelope precisely 13. Limps with water B is fixed in a way tight with the plate F by a line of folded back crenels T of this one.

Each limps with water B is provided with a connection 15 for the needs for circulation for the fluid in tubes 11 provided with wings 12, via the rooms C.

Radiator 10 must be fixed on the frame of the vehicle and to if required receive one or more accessories such as a ventilator.

This is why one at least of the radiator tanks B and preferably both limp with water B, present means of assembly which now will be described in a detailed way.

Each limps with water B constituting envelope 13 is out of moulded matter, for example out of moulded plastic, moulded metal matter etc? It presents outside the embossings 16, 17 come directly from moulding with it.

At least a part of assembly 18 (figure 3) is adapted to being subjugated on these external embossings 16, 17 of the boot with water B for the fixing of this < RTI ID=5.1> piece < /RTI> 18 with this limps B. When part 18 is thus fixed on the box B, it is itself usable for the fixing of the radiator to the frame of the vehicle or for the fixing of an accessory such as a ventilator on this radiator. For this purpose, the part of assembly 18 comprises for example a hole 19 for the needs for this fixing to the frame or the ventilator.

In the example represented on figure 3, the part of assembly 18 has a form bent with a wing 20 in which is spared hole 19 and one wing 21-with fixing with the radiator tank B.

As one sees it on figure 3, external embossings 16 and 17 are distributed on all the surface of the radiator tank B by ensuring a total stiffening of this one and are used only for one at will selected part only of them, for the fixing of wing 21 of the part 18, whose surface is smaller than that of the radiator tank B.

To fix the ideas, in the example of figure 3, ten embossings 16 are envisaged and five embossings 17 are envisaged what allows a broad choice for the work-holding 18 which in the example represented, is intended to be fixed at four embossings 16 and two embossings 17 occupant an intermediate position on club-footed B.

Among embossings 16 and 17, embossings 16 are adapted to receive the subjugated part of assembly 18 by means of bodies such as screws 22 which cross holes 23 of wing 21 of part 18 and which are adapted to being screwed directly in embossings 16 provided to this end with a pre-hole 24.

Various embossings 16 define coplanar beaches P of support for wing 21 of part 18.

Among embossings 16 and 17, embossings 17 are adapted to receive part 18 positioned by effect of fitment.

For this purpose each embossing 17 forms a pawn covering 25 on which a hole 26-of wing 21 of part 18 is adapted to engage for the positioning of piece 18.

In the example of figure 3, holes 26 are oblong to facilitate the assembly, by allowing an excellent positioning.

Embossings 16 are connected between them by longitudinal veils 27 and < RTI ID=6.1> one < /RTI> also sees into 28 of the transverse veils 28 which connect embossings 16 and 17. One thus obtains an excellent stiffening of the radiator tank B by effect of squaring.

As one sees it on figure 3, coplanar beaches

P of embossings 16 are themselves coplanar with beaches < RTI ID=6.2> P1< /RTI> what defines veils 27 and 28. Thus one obtains excellent conditions of support of wing 21 of part 18 on the whole of embossings 16, 17 and of veils 27 and 28.

The two radiator tanks B are advantageously identical what allows a standardization of manufacture. < RTI ID=6.3> I1< /RTI> is thus possible to manufacture limp with water such as B in very great series and adaptable via the bottoms F on beams of tubes 11 of various natures and forms.

The radiator tanks thus made up are adapted besides to receive parts of assembly 18 of various forms and also in sites which can be freely selected, taking into account the great number of embossings. So the radiator thus provided with the radiator tanks B is usable in a great number of applications, under various conditions of establishments, for various types of vehicles.

Once the destination of the radiator is determined, it is enough to fix the part of assembly 18 suitably selected at the suitably selected site of embossings, for example as it is shown on figure 3 where part 18 is initially positioned by engagement of holes 26 on the pawns 25 correspondents, after which the screws 22 beam the holes 23 are screwed in embossings 16. < RTI ID=7.1> I1< /RTI> is to be noted that the positioning obtained by the engagement of holes 26 in pawns 25 makes it possible to reduce the effort to the shearing of the screws 22 and thus to relieve embossings 16.

It will be appreciated that the provision which has been just described with embossings 16 and 17 not only makes it possible to stiffen the radiator tanks by allowing an easy assembly under conditions of universality of application but also makes it possible to improve the conditions of manufacture of limps with water B.

In < RTI ID=7.2> effect, < /RTI> < RTI ID=7.3> 'es< /RTI> external embossings 16 constitute a coplanar beach of particularly effective support for the various needs for fixing. If it is necessary, the pawns 25 which are projecting compared to the beach of support P, < RTI ID=7.4> P1< /RTI> can advantageously be made profitable to center limps it with water on a matrix of press, which will comprise corresponding holes.

In alternative (figure 4) the provision is similar to that which has been just described in reference on figures 1 to 3, and the same figures of reference were adopted while being followed index precedes. The embossings 16, indicated here by 16 ' are simply connected by transverse veils 28 ' while the longitudinal veils 27 for example are removed.

The embossings 17, indicated here by 17 ', are located not in the transverse alignment of alternate embossings 16 ' but with the latter. One recognizes in the 25 ' projecting pawns of positioning of these embossings 17 '. The part of assembly, indicated here by 18 ' A the general platinum shape having a central part 30 raised compared to two edges 31.

These are the edges 31 which comprise the holes 23 ' intended to be crossed by the screws 22 ' for fixing on embossings 16 '. The central part 30 comprises a hole 26 ' adapted < RTI ID=8.1> a< /RTI> to engage on pawn 25 ' of embossing 17 '. This central part 30 also comprises holes 33 < RTI ID=8.2> for the < /RTI> needs for the work-holding 18 ' with the frame of the vehicle or an accessory such as a ventilator. One recognizes in P' and P'1 the coplanar beaches of embossings 16 ' and veils 28 ' for the support of part 18 '.

In another alternative (figure 5), the collecting room C instead of being defined to some extent by a bottom such as F and to some extent by a radiator tank such as B, is defined in its totality by a monolithic tubular moulded matter envelope, indicated by 13 ''.

In this case, the beam of tubes is directly EM < RTI ID=8.3> manché< /RTI> with force in holes 40 of envelope 13 ''.

In the example of figure 5, the provision of embossings and part of assembly are similar to that which is represented with it figure 4 and the similar elements are indicated by the same references but are followed index second.

It will be appreciated that the fitting represented on figure 5 is particularly favourable with the standardization.